

## Objective

The objective was to develop a case for light-and-sound stimulator, that is mainly used at home and spa-salon. The case should have modern design and color scheme. At the same time, the surface of the device should be matted and color scheme should consist only of pastel colors (for example, pale-yellow, beige, etc.).

The analogs existing on home market have a complicated user interface. They require special training to operate a device (more often an operator supervises such devices) and their dimensions don't allow using such stimulators as portable devices.



Case dimensions for the developed stimulator should be suitable for carrying it in the jacket/robe pockets because the device is supposed to be used mainly either while sitting or in the lying position. Edges of the device should be rounded not to cling to the clothes and easily fit in the pocket.



At the same time the buttons and other controls should be protected against accidental pressing (for example, when putting the device into the pocket). Also, rear panel of the device should be reliably secured to the cover of battery compartment, meant for long-time service.

The customer provided the schemes for controls location, switching jacks, dimensions and installation drawing of device's board.

### Solution

#### Design

Before the start of works, the customer provided the dimensions of the device board. Our specialists took them into account when defining location of connectors and controls and other dimension-forming elements, located on this board.

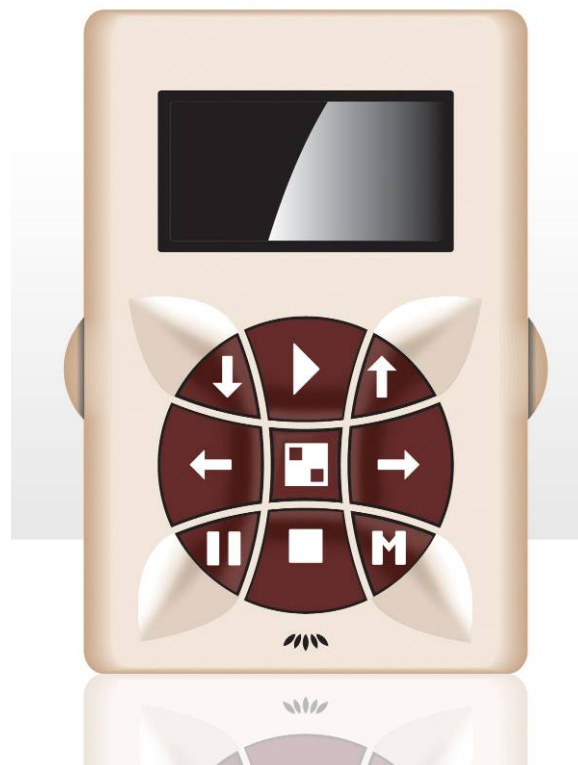
Our specialists prepared four sketches of device' design made in different style trends, where, according to the established requirements, they elaborated design and ergonomics of the device. They also designed the construction and internal location of main elements:



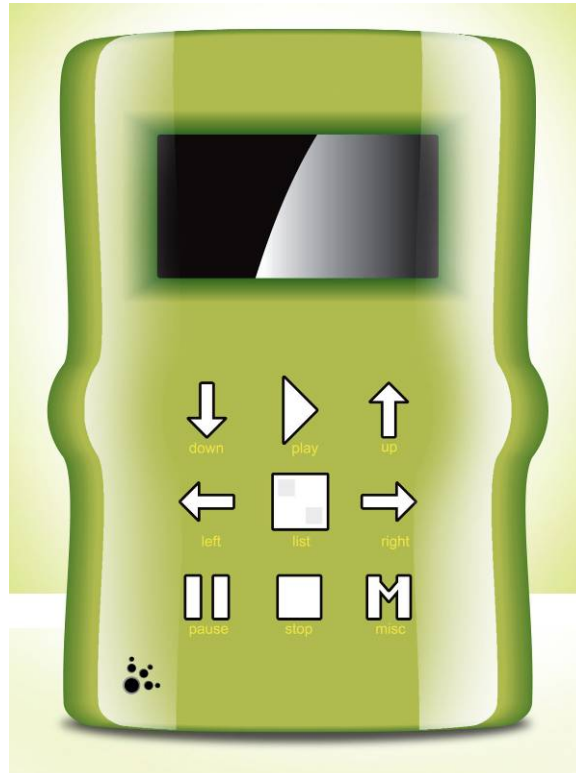
1) Simple and functional. The main focus was on locating buttons of different length made flush with the surface.



2) "White" and "fluffy". Button forms underline softness, smoothness and "kindness" of the device.



3) Classic, not representing visually either male or female audience of case design. Special lugs on device surface prevent accidental pressing of buttons.



4) "Pokemon". Smooth and soft device shape. Keyboard buttons are made in the form of planned symbols, which allow controlling the device by touch in the pocket.

After the sketch stage, the customer selected the "White and fluffy" sketch. All further project works were made on its basis though it underwent some small constructive changes before the final result.



The selected sketch of the device case is distinguished by soft shapes, rounded edges and smooth transitions of buttons. The color gamma is made in silver-purple and white-blue pastel colors.



### Construction

On the basis of the selected sketch of device case our engineers worked out a solid 3D model of the device and defined device construction and attachment fittings.

Constructively, the device case consists of:

- Two semi-cases;
- Cover of battery compartment;
- Display's protective glass;
- Silicone keyboard unit.

The engineers made the semi-cases of light-and-sound simulator from ABS material. The upper part of the case has a hole for display, the area around which has a smooth transition to protecting glass. The lower part has a range of control buttons with pictograms. Promwad specialists suggested changing location order and purpose of buttons as it is done in most media devices. Such location makes the work with the device very intuitive.



Control buttons are located in lugs, surrounded by constructively distinguished elements, which are not only designed for preventing accidental pressing of buttons, but allow using buttons by touch. Control buttons have a short smooth stroke, and their pressing is accompanied by a specific click, which makes the work with them even more comfortable.

The lower part of front panel has microphone jacks to the left.

Encoder handles are located on the left and right side of the device and are hidden in constructively dedicated lugs to protect against accidental manipulations with the handles when putting the device into the pocket and retrieving it from the pocket. Also, this case element informs the user about location of control elements when working with the device by touch.



The following elements are located on case sides:

- earphone jacks (on the left, on the top);
- glasses jacks (on the right, on the top);
- charger jacks (on the right, on the top);
- mini-USB port (on the right);
- power switch (on the right).



The pictograms on case surface sides were made using die stamping.

The rear side of the device has connectors for loudspeaker and battery compartment cover. The battery compartment represents a ready purchased module for four AA batteries. It is nested into device case, closed with the cover (the customer provided the module and spring contacts, which are secured inside the battery compartment).

According to work results, our specialists prepared project and product design&production documentation for mass production of light-and-sound simulator case.

### Benefits

- Low cost of package of case parts when mass-produced.
- Simplicity of device assembly.
- Sophisticated ergonomics facilitates the work with device by touch.
- User-friendly interface.

Project management tools	dotProject
Labor input	60 man-days
Development schedule	1.5 month